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II. Remarks

Reconsideration and re-examination of this application in view of the above amendments and the following remarks is herein respectfully requested.

Drawing Objections

The Examiner rejected to the drawing as failing to comply with 37 C.F.R. 1.83(a) because the band limited low electromagnetic interface circuit of claim 18 is not called out with a reference numeral. Accordingly, Applicants have cancelled claim 18.

Claim Rejections - 35 U.S.C. § 112

Claim 26 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 26, which previously depended from claim 27, has been amended to depend from claim 25.

Claim Rejections - 35 U.S.C. §103(a)

Claims 1-2, 5-7, and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie) in view of U.S. Patent 6,724,156 to Fregoso (Fregoso).

Claim 1, as amended, provides for "the voltage converter being in electrical communication with the plurality of parallel elements to automatically increase the voltage across a parallel element of the plurality of parallel elements causing the current to flow around a light emitting diode of the plurality of light emitting diodes

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upon an open circuit failure of the light emitting diode." Support for this amendment can be found in Paragraph [0032] of the specification and Figure 1.

Guthrie teaches parallel elements in electrical parallel connection with light emitting diodes. However, Guthrie does not teach or suggest a voltage converter, much less, the parallel elements being in communication with a voltage converter to automatically increase the voltage across the parallel element thereby causing current to flow around a light emitting diode. While Fregoso does teach an LED driving circuit including a switching regulator device that provides current feedback. Fregoso does not teach or suggest parallel elements, much less, parallel elements being in communication with a voltage converter to increase voltage across a parallel element upon an open circuit failure of the LED. Therefore, it would not have been obvious to combine Guthrie and Fregoso, because Guthrie and Fregoso are each concerned with achieving different functions. Specifically, Fregoso is concerned with optimizing the voltage efficiency for functioning LEDs, while Guthrie is concerned with switching LED banks from a series to parallel electrical connection to control luminance. One skilled in the art would only combine these references as provided in the claims based on hindsight, in view of the present invention. As such, neither Guthrie or Fregoso teach or suggest the present invention according to claim 1.

Claims 3, 8-10, and 16-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie) and U.S. Patent 6,724,156 to Fregoso (Fregoso) as applied to claim 1 above, and further in view of U.S. Patent 6,362,578 to Swanson et al. (Swanson).

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie) and U.S. Patent 6,724,156 to

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Fregoso (Fregoso) as applied to claim 1 above, and further in view of U.S. Patent 5,798,468 to Boakes (Boakes).

Claim 11 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie), U.S. Patent 6,724,156 to Fregoso (Fregoso), and U.S. Patent 6,362,578 to Swanson et al. (Swanson) as applied to claim 11 above, and further in view of U.S. Patent 6,075,595 to Malinen (Mallinen).

Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie), U.S. Patent 6,724,156 to Fregoso (Fregoso), and U.S. Patent 6,362,578 to Swanson et al. (Swanson) as applied to claim 11 above, and further in view of U.S. Patent 5,555,583 to Berkcan (Berkcan).

Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie), U.S. Patent 6,724,156 to Fregoso (Fregoso), and U.S. Patent 6,362,578 to Swanson et al. (Swanson) as applied to claim 12 above, and further in view of U.S. Patent 5,712,922 to Loewenthal et al. (Loewenthal).

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie), U.S. Patent 6,724,156 to Fregoso (Fregoso), and U.S. Patent 6,362,578 to Swanson et al. (Swanson) as applied to claim 9 above, and further in view of U.S. Patent 6,084,519 to Coulling et al. (Coulling).

Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie), U.S. Patent 6,724,156 to Fregoso (Fregoso), U.S. Patent 6,362,578 to Swanson et al. (Swanson) and U.S. Patent

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6,084,519 to Coulling et al. (Coulling) as applied to claim 9 above, and further in view of U.S. Patent 6,130,700 to Murayama et al. (Murayama).

Claim 18 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie) and U.S. Patent 6,724,156 to Fregoso (Fregoso) as applied to claim 1 above, and further in view of U.S. Patent 6,473,469 to Leitch (Leitch).

Claim 20 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,323,598 to Guthrie et al. (Guthrie) and U.S. Patent 6,724,156 to Fregoso (Fregoso) as applied to claim 1 above, and further in view of U.S. Patent 6,448,951 to Sakaguchi et al. (Sakaguchi).

Claims 2-17 and 20 depend directly or indirectly on claim 1. None of the additional cited references (Swanson, Boakes, Malinen, Loewenthal, Coulling, Murayama, Leitch, Sakaguchi, or Smith) teach or suggest "the voltage converter being in electrical communication with the plurality of parallel elements to automatically increase the voltage across a parallel element of the plurality of parallel elements causing the current to flow around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode." Therefore, claims 2-17 and 20 are patentable for at least the reasons given above in support of claim 1.

Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,105,179 to Smith (Smith) in view of U.S. Patent 6,323,598 to Guthrie et al. (Guthrie).

Claim 21, as amended provides for "a voltage converter being in electrical communication with the plurality of parallel elements to automatically increase the

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voltage across a parallel element of the plurality of parallel elements causing the current to flow around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode." Support for this amendment can be found in Paragraph [0032] of the specification and Figure 1.

Smith teaches an LED driving circuit used in an LCD display for automotive application. However, Smith does not teach or suggest parallel elements, much less, parallel elements, being in communication with a voltage converter. Further, Guthrie teaches parallel elements in electrical parallel connection with light emitting diodes, however, Guthrie does not teach or suggest a voltage converter, much less, the parallel elements being in communication with a voltage converter to automatically increase the voltage across the parallel element thereby causing current to flow around a light emitting diode. As such, neither Guthrie or Smith teach or suggest the present invention according to claim 1.

Claims 22-23 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,105,179 to Smith (Smith) in view of U.S. Patent 6,323,598 to Guthrie et al. (Guthrie) as applied to claim 21 above and further in view of U.S. Patent 6,362,578 to Swanson et al. (Swanson).

Claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,105,179 to Smith (Smith), U.S. Patent 6,323,598 to Guthrie et al. (Guthrie), and U.S. Patent 6,362,578 to Swanson et al. (Swanson) as applied to claim 23 above, and further in view of U.S. Patent 5,924,784 to Chliwnyj et al. (Chliwnyj).

Claims 22-24 depend directly or indirectly on claim 21. None of the additional cited references (Swanson or Chliwnyi) teach or suggest "a voltage converter being

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in electrical communication with the plurality of parallel elements to automatically increase the voltage across a parallel element of the plurality of parallel elements causing the current to flow around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode." Therefore, claims 22-24 are patentable for at least the reasons given above in support of claim 21.

Claim 25 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,411,046 to Muthu (Muthu) in view of U.S. Patent 6,323, 598 to Guthrie et al. (Guthrie).

Claim 25, as amended provides for "automatically increasing the voltage across a parallel element of the plurality of parallel elements causing the current to flow around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode." Support for this amendment can be found in Paragraph [0032] of the specification and Figure 1.

Muthu teaches an LED driving circuit that adjusts LED current based on temperature. However, Muthu does not teach or suggest parallel elements, much less, parallel elements, being in communication with a voltage converter. Further, Guthrie teaches parallel elements in electrical parallel connection with light emitting diodes. However, Guthrie does not teach or suggest the parallel elements being in communication with a voltage converter to automatically increase the voltage across the parallel element thereby causing current to flow around a light emitting diode. As such, neither Guthrie or Muthu teach or suggest the present invention according to claim 1.

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Claim 26 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,411,046 to Muthu (Muthu) and U.S. Patent 6,323, 598 to Guthrie et al. (Guthrie), as applied to claim 25 above, and further in view of U.S. Patent 6,724,156 to Fregoso (Fregoso).

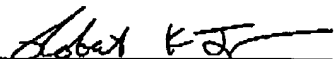
Claim 26 depends directly from claim 25. As discussed previously, Guthrie does not teach or suggest "the voltage converter being in electrical communication with the plurality of parallel elements to automatically increase the voltage across a parallel element of the plurality of parallel elements causing the current to flow around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode." Therefore, claim 26 is patentable for at least the reasons given above in support of claim 25.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

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Date


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